



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/789,043

02/27/2004

Darrell L. Wertz

18135

8326

7590

03/16/2005

Robert J. Kapalka
Tyco Technology Resources
Suite 140
4550 New Linden Hill Road
Wilmington, DE 19808

EXAMINER

ZARROLI, MICHAEL C

ART UNIT

PAPER NUMBER

2839

DATE MAILED: 03/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/789,043

Applicant(s)

WERTZ ET AL.

Examiner

Michael C. Zarroli

Art Unit

2839

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 14-18 is/are rejected.
- 7) ☒ Claim(s) 8-13 and 19-24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6/7/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, *the frame able to float laterally relative to the pins and, the pins connected to the electrical components* must be shown or the feature(s) canceled from the claim(s). The examiner sees where the substrate floats but not the frame. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing

sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR

1.121(d). If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The abstract of the disclosure is objected to because of the language "is provide." Correction is required. See MPEP § 608.01(b).

3. The disclosure is objected to because of the following informalities: Applicant needs to update the blank information pertaining to copending applications.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-⁶~~8~~ rejected under 35 U.S.C. 102(e) as being clearly anticipated by

Bali et al. ^{MC2}_{3/13/05}

Bali discloses an LGA interconnect, for interconnection to further electrical components (paragraph 0001 last sentence), said LGA interconnect comprising a substrate (120) and a plurality of contact assemblies (128) positioned and retained to said substrate (paragraph 32 last 2 sent.) for connection with said electrical components, and further comprising alignment members (230, 232) projecting from said substrate for aligning said substrate relative to at least one of the electrical components (fig. 1).

Regarding claim 2 Bali discloses that each said contact assembly comprises a first contact extending from a first side of said substrate and a second contact extending from a second side of said substrate (figures 6 or 7), said first and second contacts defining an array of contacts.

Regarding claim 3 Bali discloses that a frame housing (202) surrounds said array of contacts.

Regarding claim 4 Bali discloses that the alignment members are comprised of pins (230).

Regarding claim 5 Bali discloses that said pins extend through said frame housing for registration directly to one of said electrical components (figures 13 or 14).

Regarding claim 6 Bali discloses that said pins are discrete members attached at diametrically opposite positions of the substrate (fig. 2).

6. Claims 14-17 rejected under 35 U.S.C. 102(b) as being clearly anticipated by DelPrete et al.

DelPrete discloses an LGA interconnect (col. 1 line 5+), for interconnection to further electrical components (fig. 1), said LGA interconnect comprising: a substrate (FIG. 2A) having an upper surface (52) and a lower surface (42), marginal side edges (fig. 2A), and an array of contact receiving openings (54, 44) therein; a plurality of contact assemblies (50, 46) positioned and retained in said substrate (e.g. fig. 3A), with a first contact portion positioned above said upper surface and a second contact positioned below said lower surface, said plurality of contacts defining an array of contacts (fig. 3E); a frame housing (16 or 32) positioned around a periphery of said substrate; and alignment members (34 & fig. 1 dashed lines) projecting from said substrate for aligning said substrate relative to at least one of the electrical components.

Regarding claim 15 DelPrete discloses that said alignment members are comprised of pins (fig. 1 screws).

Regarding claim 16 DelPrete discloses that said pins extend through said frame housing for registration directly to said electrical component (fig. 1 dashed lines).

Regarding claim 17 DelPrete discloses that said pins are discrete members attached at diametrically opposite positions of said substrate (fig. 8A).

Claim Rejections - 35 USC § 103

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 7 rejected under 35 U.S.C. 103(a) as being unpatentable over Bali et al as applied to claim 1 above, and further in view of Hoffmeyer.

Bali does not disclose that the frame floats laterally relative to the pins.

Hoffmeyer discloses that a frame housing (21) can laterally float (at 43 & 44) relative to said pins (18).

At the time the invention was made it would have been obvious to one of ordinary skill in the art to modify the frame of Bali so that it floats laterally relative to the pins as taught by Hoffmeyer. A motivation for doing so would have been to allow for a better fit if tolerances become altered in cold or hot environments.

10. Claim 18 rejected under 35 U.S.C. 103(a) as being unpatentable over DelPrete et al as applied to claim 14 above, and further in view of Hoffmeyer.

DelPrete does not disclose that the frame floats laterally relative to the pins.

Hoffmeyer discloses that a frame housing (21) can laterally float (at 43 & 44) relative to said pins (18).

At the time the invention was made it would have been obvious to one of ordinary skill in the art to modify the frame of DelPrete so that it floats laterally relative to the pins as taught by Hoffmeyer. A motivation for doing so would have been to allow for a better fit if tolerances become altered in cold or hot environments.

Allowable Subject Matter

11. Claims 8-13 and, 19-24 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter: In combination with the claims on which they depend, the frame housing comprised of two parts attached to each other.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Chan et al and Kehley et al teach a frame that floats relative to pins but the frame does not surround the array. Lin teaches a substrate with LGA contacts and a frame surrounding.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Zarroli whose telephone number is 571-272-2101. The examiner can normally be reached on 7:30 to 3:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, T.C. Patel can be reached on (571) 272-2800 ext 39. The

fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Michael C. Zarroli
Primary Examiner
Art Unit 2839

MCZ
MCZ